

RS Hyperspectral Water Quality Monitoring System

ATE5700

Features

- High-resolution built-in hyperspectral water quality monitoring, liquid level monitoring, and on-site video evidence collection capabilities
- Remote monitoring – no need for direct water contact
- Maintenance-free operation, no chemical reagents required
- Supports multiple water quality indicators: chlorophyll, total nitrogen, total phosphorus, transparency, etc.
- Spectral range: 400–1000 nm
- Spectral resolution: 1 nm
- Water quality accuracy deviation: < 20%
- Fastest monitoring speed: second-level response
- Monitoring height: 8 meters
- Water level monitoring technology: 80 GHz millimeter-wave radar
- Water level accuracy error: < 5 mm
- Unaffected by environmental conditions such as rain, wind, fog, or high temperature
- Supports up to 2560×1440 @ 30fps high-definition video output

Applications

- Real-time online monitoring of river water quality
- Online monitoring of lake and marine water quality
- Online monitoring of aquaculture water quality

Description

ATE5700 Hyperspectral Water Quality Multi-Parameter Remote Sensing Monitor is developed by Optosky for real-time online remote monitoring of water quality in rivers, lakes, oceans, and other water bodies. This device integrates hyperspectral water quality monitoring, water level sensing, and on-site video recording capabilities.

The instrument employs internationally advanced hyperspectral remote sensing technology, featuring a proprietary high-performance hyperspectral analyzer and a deep learning inversion algorithm co-developed with the Chinese Academy of Sciences. Validated through tens of thousands of field tests, it enables real-time detection of multiple water quality parameters.

ATE5700 provides in-situ water quality and water level data in real time, triggers automatic alarms for anomalies, and records on-site video/images. Data can be uploaded to a cloud platform for multi-point real-time monitoring, threshold-based alarming, historical review, and trend analysis, with support for remote internet access.

Optosky contributed to the industry standard "Technical Guidelines for Spectral Water Quality Online Monitoring Systems," published and implemented in 2020.



1. Parameter

Hyperspectral	
Sensor Type	Single-point Spectrometer
Spectral Band	200-1000nm
Spectral Resolution	1nm
Water Quality Measurement Indicators	Chlorophyll, Total Nitrogen (TN), Total Phosphorus (TP), Transparency, COD, Turbidity, Ammonia Nitrogen (NH ₃ -N), Suspended Solids Concentration, etc.
Accuracy Deviation Indicator	± 20% (TN,TP,NH ₃ -N ±30%)
Installation Height	2 ~ 8m
Level Radar	
Measurement Range up to	8m
Measurement Deviation	±5mm
Measurement Frequency	W- Band (80GHz Technology)
Beam Angle	8°
Visible Light Camera	
Sensor Type	1/1.8 " progressive
Minimum Illumination	Color: 0.005 Lux @ (F1.3, AGC ON); B/W: 0.001 Lux @ (F1.3, AGC ON); 0 Lux with IR
Focal Length	2.8~12mm, 4x Optical Zoom
Field of View	107.4°~39.8° (Wide-angle to Telephoto)
Maximum Aperture	F1.3
Pan-tilt Function - Horizontal Range	Horizontal 360°
Pan-tilt Function - Vertical Range	-5°~90°
Maximum Image Size	2560×1440
Infrared Illumination Distance	50m
Anti-Overexposure for Fill Light	Support
Whole Unit	
Power Consumption	Less than 50W
Power Supply	DC12V,5A
Weight	8KG
Installation Conditions	The monitoring location should have a water depth of over 1 meter (where the bottom material is not directly visible); the surrounding area should be open and clear, avoiding the projection of shadows from objects onto the monitor or the monitoring point below.